China - Shenzhen pilot ETS

General Information

ETS Description

The Shenzhen Pilot ETS began in June 2013 and was the first of the Chinese pilots to start. As a city within Guangdong province with its own separate ETS, Shenzhen is the only Chinese pilot operating at the sub-provincial level. Covered entities must surrender allowances for all their covered emissions, and allocation is based predominantly on free allocation.

The Shenzhen ETS covers emissions from over 650 entities in the industry, buildings, and transport sectors. Except for two auctions held in 2014 and 2022, allowances have been allocated freely using both benchmarking and grandparenting. In addition to the national offset program (CCER), the Shenzhen ETS also accepts units from local offset programs, including the Tan Pu Hui system.

Shenzhen's market has the highest liquidity in China, despite its relatively small size. In contrast to most pilot systems in China, which are regulated by sub-national government orders from the executive body of the government, Shenzhen's is regulated by a dedicated ETS bill passed by its municipal legislator, the Shenzhen People's Congress. According to the "Implementation Plan of Shenzhen Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality", the Shenzhen ETS will apply an absolute cap from 2027.

The Shenzhen ETS currently operates in parallel with the Chinese national ETS. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national carbon market.

ETS Status

in force

Jurisdictions

Shenzhen

Year in Review

In March 2024, the Shenzhen Environment and Ecology Bureau (EEB) updated its coverage list for compliance year 2023, removing 65 companies from the list of covered entities and adding 118 companies to the list. While one company moved out of Shenzhen, the others were removed as their emissions were below the inclusion threshold for three consecutive years. The Shenzhen ETS now covers 737 entities.

In August, the EEB published the allocation plan for 2024, which expanded coverage to data centers and solid waste, and broadened the service industry inclusion by adding accommodation and catering, wholesale and retail, warehousing and postal services, software and information services, government agencies and public institutions. Also from 2024, green power purchased in the power market, in addition to CCERs and local offset credits, can be used to fulfil the shortfall in compliance obligation.

Sectoral coverage

Waste
Transport
Buildings
Industry

Revenue usage

General budget, including debt reduction
Climate mitigation

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO2e)

45.42 MtCO_2e(2020)*

* No data is publicly available for recent years; the data here is estimated by local experts.

GHG reduction targets

By 2030: Peak carbon emissions (Outline of the 14th Five-Year Plan and 2035 Vision)

By 2035: Decouple GHG emissions from economic and social development (Shenzhen's 14th Five-Year Plan for Climate Change)

Current Allowance Price (per t/CO2e)

CNY 47.78 (USD 6.64) (updated prices available here)

Size & Phases

Covered emissions (2020)

50.00%

GHGs covered

CO2 only

Phases

Ongoing

Cap or total emissions limit

A cap limits the total emissions allowed in the system.

2015 to 2019: ~31MtCO_2 (excluding buildings)

2020: 22 MtCO_2

2021: 25 MtCO_2

2022: 26 MtCO_2

2023: 28 MtCO_2

2024: 33.5 MtCO_2

In addition, the government sets aside reserves for new entrants (2%) and market stability measures (2%).

Sectors and thresholds

Water, gas, heat, manufacturing, electronic equipment, waste management, ports, subways, public buses, and other non-transport sectors. Electricity production was covered until 2019, after which it transitioned to the China national ETS. Data centers, solid waste, accommodation and catering, wholesale and retail, warehousing and postal services, software and information services, and government agencies and public institutions are newly covered in 2024.

INCLUSION THRESHOLDS: Annual emissions over 3,000 tCO_2 per year for enterprises; entities confirmed by local EEB.

Point of regulation

Point source (industry); downstream (indirect emissions from electricity and heat consumption).

Type of entities

Companies

Number of entities

737 (2023)

Allowance Allocation & Revenue

Allowance allocation

Allowances are largely distributed for free, and allocation is adjusted ex-post based on output data.

FREE ALLOCATION:
Benchmarking: Applied to the water, power grid, gas and data centre sectors based on sectoral historical emissions intensity.

Grandparenting: Applied to waste management facilities, ports, subways, public buses, and some specific chemical production based on a product-based historical emissions intensity method. A GDP-based historical emissions intensity method is applied to manufacturers. For public buildings such as accommodation and catering, wholesale and retail, warehousing and postal services, software and information services, and government agencies and public institutions, and universities, grandparenting based on historical emissions is applied.

AUCTIONING: The 2022 "Provisional Regulation of the Shenzhen Emission Trading Pilot Scheme" states that allowances can be sold at auction or at a fixed price. At least 3% of allowances should be auctioned. So far, two auctions have been held, in June 2014 and August 2022.

For the 2022 auction, the floor price was set at CNY 29.64 (USD 4.12) per tonne. More than 0.5 $MtCO_2$ of allowances were auctioned, at an average price of CNY 43.49 (USD 6.04) per tonne, with a total revenue of CNY 25.3 million (USD 3.5 million).

For the 2014 auction, the floor price was set at CNY 35.43 (USD 4.92) per tonne. 0.8 $MtCO_2$ of allowances were sold, with a total revenue of CNY 2.65 million (USD 0.37 million). The purpose of this auction was to increase market supply and price stability.

Total Revenue

~CNY 27.9 million (USD 3.9 million) since the beginning of the program

Use of Revenues

According to the 2014 Shenzhen ETS regulation, auctioning revenues are attributed to the city treasury.* However, the 2022 revision states that the city will enhance the transparency of revenue use and establish a new Carbon Emissions Trading Fund to support the ETS and other GHG reduction programs.

* The 2014 Shenzhen ETS regulation stipulated that the city government would set up a market stability fund, dedicated to market stabilization measures, supporting companies' mitigation activities, the promotion of market service institutions, capacity building, and ETS management, funded by auction revenues, donations and other channels.

Flexibility & Linking

Offset credits

The use of offset credits is allowed.

QUANTITATIVE LIMIT: The use of offset credits is limited to 20% of the shortfall in compliance obligation.

QUALITATIVE LIMIT: Domestic project-based carbon offset credits (CCERs), Tan Pu Hui local offset credits, and other offset credits authorized by the local government are allowed. Credits from hydropower projects are not eligible, and additional geographical restrictions apply to the use of certain CCERs and local offset programs.

Starting from 2024, green power purchased and consumed through electricity market can also be used to offset emissions, with a limit on its use equal to the size of the shortage.

Banking and borrowing

Banking is allowed.

Borrowing is not allowed.

Links with other Systems

The Shenzhen Pilot ETS is not linked with any other system. The Guangdong-Hong Kong-Macao Greater Bay Area (to which Shenzhen belongs) plans to explore the feasibility of a joint or linked carbon market. According to Shenzhen's local green finance legislation, financial institutions will in the future be encouraged to participate in cross-border trading in this market.

Other carbon pricing instruments in the jurisdiction

ETS: Chinese national ETS

Domestic crediting mechanisms: Tan Pu Hui local offset credits in Shenzhen (STTCER)

Domestic crediting mechanisms (national): China Certified Emissions Reduction (CCER)

Compliance

Compliance mechanism

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

Compliance Period

One calendar year. Covered entities have until the end of August of the following year to surrender allowances.

Monitoring, Reporting, Verification (MRV)

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING FREQUENCY: Annual reporting of CO_2 emissions to the ETS competent authority by the end of March of the following year, using tiered emissions factors depending on different emission sources. Covered industrial entities must also annually submit a statistical indicator report covering their production data to the municipality's statistics department by the end of March of the following year. Entities should surrender allowances or offset credits by the end of August.

VERIFICATION: Third-party verification of the annual emissions report is required (deadline for submission is the end of March of the following year). The competent authority may assign this to a specialized agency.

FRAMEWORK: Shenzhen has released two documents:

- a general guiding document in the form of regional standards on monitoring and reporting; and
- a guiding document on monitoring and reporting for the buildings sector.

Penalties and enforcement

REGULATED ENTITIES: Penalties for failing to submit an emission or verification report on time or for providing fraudulent information range from CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947).

Covered entities providing false information can be fined CNY 50,000 (USD 6,947) to CNY 100,000 (USD 13,894).

Penalties for disturbing the market order can rise to CNY 100,000 (USD 13,894). Covered entities failing to surrender sufficient allowances to match their emissions are fined three times the average market price of the preceding six months. The missing allowances can be withdrawn from the company's account or deducted from the next year's allocation.

CNY 50,000 (USD 6,947) to CNY 100,000 (USD 13,894) may be imposed if a third-party agency falsifies reports.

Other non-financial penalties include public reporting, reporting to relevant credit information of public banks, disqualification from financial subsidies (for five years), and a record entered in the State-Owned Enterprise performance assessment system.

THIRD-PARTY VERIFIERS: Third-party verifiers shall be penalized with a fine of between CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947) for issuing false verification reports, material errors in verification reports, and for unauthorized use or publication of confidential corporate or emissions information.

Market Regulation

Market Stability Provisions

INTERVENTION

Instrument type: Price-based instrument

Functioning: In case of significant price rise or low liquidity, the Shenzhen EEB can auction extra allowances from the reserve at a fixed price; 2% of the total cap is kept as a government reserve for market stabilization.

Such allowances can be used only for compliance and cannot be traded. The situation of a significant price rise in allowance prices refers to when the closing price of allowances on a given day exceeds the highest daily closing price in the national or pilot carbon market over the preceding 12 months. Additionally, this situation occurs when the average allowance price over six months reaches or exceeds three times the average allowance price over the past 24 months, or when the average allowance price over a week reaches or exceeds three times the lowest weekly average price over the preceding 24 weeks.

The situation of excessively low quantities of allowances in circulation occurs when, following the completion of the previous year's compliance work, there are fewer allowances in circulation than 20% of the total annual quantity of allowances for the current year.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The China Emissions Exchange (Shenzhen) implements a system of limits on price increases and decreases for trading over the exchange. For listed trading (with maximum trading volume of 30,000 tCO_2), this is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day). For block trading (with minimum trading volume of 10,000 tCO_2), this is 30% above or below the reference price. Only transactions within this price range can be successfully completed on the exchange.

Market Design

MARKET PARTICIPATION: Compliance entities; non-compliance entities (institutional investors); individuals (both domestic and international), subject to meeting the requirements of the carbon emission trading rules set by the China Emissions Exchange (Shenzhen).

MARKET TYPES:

Primary: Shenzhen so far has very limited experience with auctioning: two auctions have been held, in 2014 and 2022. Only compliance entities and member institutions authorized by the China Emissions Exchange (Shenzhen) may participate.

Secondary: CCERs, Shenzhen Allowances (SZAs) and local Tan Pu Hui offset credits are the main spot trading products in the secondary market. The China Emissions Exchange (Shenzhen) is the trading platform for all products.

Due to financial market regulations in China, no forward markets or derivatives are allowed. However, with the regional green finance legislation that entered into force in March 2021, Shenzhen sees new momentum to explore the development of innovative carbon financial products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

Other Information

Institutions involved

Ecology Environment Bureau of Shenzhen Municipality (EEB): Responsible for ETS affairs, including the registry and MRV.

China Emissions Exchange (Shenzhen): Responsible for operating the trading platform.

Regulatory Framework

Carbon Emissions Management Regulations of Shenzhen Special Economic Zone (the local ETS bill) (2012)
Measures for Management of Emissions Trading in Shenzhen (2022)

Implementation Plan of Shenzhen Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality.
Shenzhen EEB—Notice on Carrying out ETS Work for Compliance Year 2019 (with list of covered entities)

Shenzhen EEB—Regulations on Tan Pu Hui Management

Shenzhen EEB—Allocation Plan for Vintage 2022 and 2023

Shenzhen EEB—Allocation Plan for Vintage 2024

Evaluation / ETS review

No formal evaluation has been conducted. Research on improving the Shenzhen ETS is undertaken every year, funded by the Shenzhen government.

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